DOCUMENT RESUME

ED 285 106 CG 020 149

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TITLE The Role of Technical Knowledge in Attitudinal Learning.
PUB DATE 8 May 87
NOTE 13p.; Paper presented at the Annual Meeting of the Midwestern Psychological Association (59th, Chicago, IL, May 7-9, 1987).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Drinking; Graduate Students; Higher Education; *Knowledge Level; *Learning Processes; *Learning Theories; Persuasive Discourse; *Student Attitudes

ABSTRACT

In the 1940s, attitudes were shown to facilitate the learning of agreeable persuasive communications. Post-1960s research, however, has failed to obtain this effect consistently. A study was conducted to investigate the role of technical knowledge in attitudinal learning in the domain of social drinking. Graduate students (N=60) verbally described their position on social drinking and listed all the reasons they knew for and against this issue. Subjects then learned and recalled each of three messages on social drinking. The pro- and anti-drinking messages contained 12 arguments each; the third message argued that people should learn to make pousse-cafes, a layered drink of liqueurs, syrups, and creams. Following the learning phase, subjects responded to computer and written tests of attitudes toward social drinking, drinking-related knowledge, and familiarity with message content. The results revealed that attitudes did not predict the recall of pro- and anti-drinking messages. Attitude was positively related to the possession of technical knowledge--knowledge that would be useful in learning the pousse-cafe message, but not the other socio-political communications. The study found weak attitude and learning effects which were dependent on the amount of technical knowledge in the domain. (NB)

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The Role of Technical Knowledge in Attitudinal Learning

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AT & T

-- Abstract --

In the 1940s, attitudes were shown to facilitate the learning of agreeable persuasive communications. However, post-1960s research has failed to obtain this effect consistently. The present study found weak attitude and learning effects which were dependent on the amount of technical knowledge in the domain.

CG 020149

Paper presented at the Midwestern Psychological Association convention on May 8, 1987, Chicago, IL.

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The Role of Technical Knowledge in Attitudinal Learning

In this presentation, we investigate another route, this one using the knowledge structures supporting an attitude, to producing the troublesome attitude and selective learning effect. Recall that in the 1940s, many studies demonstrated that subjects could best recall information that agreed with their attitudes. For example, in a study by Levine and Murphy (1943), pro- and anti-communist students attempted to learn messages supporting and denouncing communism. The results showed that the pro-communists learned the pro message better than the anti-communists, whereas the opposite result occurred for the anti-message. Nevertheless, in the 1960s, this effect could not be reliably obtained by a number of researchers, prompting Greaves (1972) to describe the attitude and selective learning effect literature as "unambigiously inconclusive."

In a series of four experiments, Pratkanis (1984) implicated the role of knowledge structures supporting an attitude for determining learning effects. For what can be termed "unipolar attitudes," Pratkanis found superior recall for agreeable information. For these domains, such as sports and music, a positive attitude covaries with an elaborate knowledge structure about the domain. That is, sports fans and music impresarios possess a lot of knowledge about their domains and this knowledge can be useful in learning related persuasive communications.

In contrast, for bipolar attitudes, the distribution of knowledge is not correlated with attitude. For these domains, which include such controversial issues as nuclear power, defense spending, and welfare, pro- and anti- individuals possess information on both sides of an issue -- that is, both support and opposition arguments. Further, some previous research (such as that by Hynes presented earlier in this session) shows a tendency for individuals with extreme attitudes to possess more knowledge. Thus, attitude extremity effects (similar to those of Judd and Kulik, 1980) tend to occur -- superior learning for information rated at the extremes of an attitude scale.

The present study sought to extend these attitude/knowledge findings by looking at learning in the domain of social drinking. The knowledge structures of pro and anti-social drinkers should differ in one important manner -- pro-drinkers should possess more technical information about drinking. Technical information is knowledge on how, when, and where to drink -- for example, knowing how to make a Pousse-cafe, the names of various liqueurs, and how to use bartending equipment.

On the other hand, there is litte reason to expect that pro- and anti-drinkers systematically vary in their socio-political knowledge of drinking. That is, arguments for and against drinking such as "Drinking and driving kills" and "Drinking improves a social ocassion" are readily present in the social environment and can be easily obtained and learned by all.

Thus, an attitude and selective learning effect is expected to occur for highly technical messages, since the pro-drinker is likely to possess an elaborate knowledge structure that should facilitate the learning of such a communication. On the other hand, attitudes should not predict the learning of socio-political messages since the distribution of socio-political knowledge (within this domain) is not necessarily related to attitudes.

Method

Sixty subjects were recruited from MBA classes at C.M.U. and were paid $5.00 for their participation. Each subject completed the tasks listed on the first overhead. First, subjects received an overview of the experiment and informed consent materials. Next, subjects verbally described their position on social drinking and listed all the reasons they knew, for and against this issue.

Subjects then learned and recalled each of three messages on social drinking (presented in a counterbalanced order). Each subject was told that they would be asked to recall the message and was given 5 minutes to study the passage. Subjects were then asked to guess the answers to 5 trivia statements as a filler task. Subjects then attempted to recall the passage before going on to the next message.

Three messages were employed in the study. The pro- and anti- social drinking messages were three paragraphs in length and contained a dozen arguments in support (or opposition) to social drinking. The next overhead presents the anti-drinking message. It included such arguments as, "Alcohol represents a health risk." and "Many violent crimes are alcohol-related." The third message argued that more people should be learning how to make Pousse-cafes. As stated in the message, a Pousse-cafe is a colorful, layered drink made with a series of liqueurs, syrups, and creams of different specific gravities. This message contained many technical terms and phrases that should be known primarily to those who enjoy drinking.

Upon completing the learning phase, subjects responded to a series of items presented by a computer. These items were designed to assess attitude towards social drinking (i.e. Social drinking is a good thing.), technical experience and knowledge (i.e. I drink less alcohol than most people), socio-political behavior and knowledge (i.e. I know many reasons for social drinking), and genreal interest in drinking, and the desire to make Pousse-cafes. Next, subjects rated the two dozen pro- and anti- message statements for both agreeability, and for familiarity. Both ratings were taken on 7-pt scaled with (with 1 = strongly disagree and 7 = strongly agree) or (with 1 = not very familiar and 7 = very familiar).

After the computer phase, subjects completed (in booklet form) an objective test designed to assess their drinking expertise. It include items such as: "Name 3 types of white wine." and "Why do some brands of tequila have a worm in the bottle?" This was followed by a set of questions

measuring familiarity with the Pousse-cafe message. A debriefing opportunity concluded the experiment.

Results

The relationship of attitude to technical and socio-political knowledge. A series of regressions were performed to determine the relationship between attitudes and technical and socio-political knowledge. These regressions attempted to predict a subject's attitude using a knowledge measure (or the square of the measure).

As expected, individuals with positive attitudes towards social drinking possessed more technical knowledge about the domain. Attitude was positively related to all measures of technical knowledge including the objective test score. interest in making a Pousse-cafe, familiarity with the Pousse-cafe message, self-reported expertise in making drinks and in engaging in drinking behavior. Thus, we expect attitudes to predict the learning of the Pousse-cafe message.

On the other hand, attitudes were not systematically related to the socio-political knowledge measures including the self-reports of political knowledge and of behavior as well as the number of arguments generated in the free response task. There was some evidence that people with positive attitudes reported that they knew more arguments in support of drinking. However, people with extreme attitudes reported knowing more anti-drinking arguments. Thus, unlike the bipolar, controversial issues used by Judd and Kulik (1980) and by Pratkanis (1984), the relationship between attitudes and socio-political knowledge of drinking is quite complex, making it difficult to use a general measure of attitude as a predictor of learning in the domain.

Relationship of knowledge and recall. Recall was scored using both a gist and number of recalled idea units criteria. As can be seen in the next overhead, subjects with more technical knowledge demonstrated superior recall of the Pousse-cafe message ($t(59) = 2.85$, $p < .01$), but not the other two socio-political messages. (Presented are the best fitting regression lines predicting percentage of total idea units recalled using the objective test score). Consistent with the finding that socio-political schemas for the social drinking issue are not well developed, the socio-political knowledge measures were unrelated to the learning of any of the three messages.

Relationhip of attitude and recall. The next overhead presents the best fitting regression equations predicting percentage of idea units recalled as a function of attitude. For the most part, attitude and learning effects are weak. For the Pousse-cafe message, pro-drinking subjects demonstrated a tendency to recall this message better than those with less favorable attitudes ($t(59) = 1.68$, $p < .1$). However, when a measure of objective knowledge was added to a regression equation using attitude to predict the

recall of the Pousse-cafe message, attitude ceased to be even a marginally agnificant predictor. No clear relationship was found between attitude and recall of the pro- and anti-drinking messages.

Given that subjects may not have clearly developed socio-political knowledge structures in this domain, the prediction of recall may be better accomplished using the subjects' rating of agreement and familiarity with each statement in the pro- and anti- messages. An attitude and selective learning effect was obtained using the agreement measure. Subjects demonstrated superior recall for information that they rated as agreeable ($t(1799) = 2.04$, $p < .05$). In addition, subjects were also better at recalling statements rated as familiar ($t(1799) = 3.79$, $p < .01$). The correlation between agreement and familiarity ratings was .44 ($p < .01$). When statement recall was predicted by a regression equation including both agreement and familiarity, familiarity successfully predicted recall, but agreement did not. In other words, the variance in recall predicted by agreement could be account for by the familiarity factor.

Discussion

The present study obtained results consistent with many recent findings on attitudes and selective learning. First, attitudes did not predict the recall of pro- and anti-drinking messages. Second, in the one instance where attitudes did predicted recall (for the Pousse-cafe message), the results were not strong. Further, this attitude and selective learning finding can be interpreted as a result of the selective distribution of knowledge along the attitude continuum. Attitude was positively related to the possession of technical knowledge -- knowledge that would be useful in learning the Pousse-cafe message, but not the other socio-political communications.

In contrast, to many recent studies, agreement measures were positively related to the recall of message statements. However, this can also be interpreted as a knowledge-based effect. Agreement was correlated with message statement familiarity, which also predicted recall. The effect of agreement on recall was vastly diminshed when measures of familiarity were included in a regression equation.

Previous research has identified at least two types of knowledge structures supporting an attitude -- unipolar and bipolar attitudes. The knowledge structures supporting social drinking attitudes conforms most to the unipolar pattern. Technical knowledge in the domain is more likely to be possessed by those with a positive drinking attitude. On the other hand, individuals do not appear to have well-developed bipolar knowledge structures and these structures do not appear to be related to attitudes. The lack of bipolar structure is somewhat surprising given that social drinking can be viewed as a controversial issue. The present results indicate that we do not, as yet, know the full list of conditions under which bipolar knowledge structures arise.

Can the present results be used to interpret past attitude and selective learning studies? Given the passage of time and changes in historical context, it is difficult to speculate on the possibility that different knowledge structures were possessed by differenct attitudinal groups. Nevertheless, it should be noted that the two messages used by Levine and Murphy were peppered with terms and phrases that may have been best known and understood by partisans, such as: "Russia, bled white, by Stalin"; "the spirit of liquidation of the kulaks"; "guests of a collective farm"; "exploitation of man." The presence of such phrases in this (and perhaps other messages used in prior attitude and selective learning studies) suggests that knowledge structures supporting an attitude may have played an important role in determing when attitudes predicted the learning of a persuasive communication.

References

Greaves, G. (1972). Conceptual system functioning and selective recall of information. Journal of Personality and Social Psychology, 3, 327-332.

Judd, C. M. & Kulik, J. A. (1980). Schematic effects of social attitude on information processing and recall. Journal of Personality and Social Psychology, 38, 569-578.

Levine J. M. & Murphy G. (1943). The learning and retention of controversial statements. Journal of Abnormal and Social Psychology, 38, 507-517.

Pratkanis, A. R. (1984). Attitudes and memory: The heuristic and schematic functions of attitudes. Unpublished Doctoral Dissertation. Ohio State University, Columbus, OH.

Part 1: Social Drinking Survey

1. Introductory materials
2. Free response of reasons
3. Message, trivia, recall
   Message, trivia, recall
   Message, trivia, recall

Part 2: Computerized survey

1. Collection of:

   attitudes towards drinking
   self-reported knowledge
   self-reported experience

2. Measures of agreement and familiarity with pro/anti message statements

Part 3: Final survey

1. Objective knowledge test
2. Familiarity measure of Pousse-cafe message

Debriefing instructions

Overhead #1

DRINKING IS BAD FOR YOUR LIFE

The abuse of alcohol leds to the social deterioration of our country. People make fools of themselves when drunk. Alcohol abuse contributes to the break-up of thousands of families each year. Drinking on the job diminishes worker effectiveness and performance along with productivity. Many of the nation's violent crimes are alcohol related. People spend hundreds of millions of dollars each year on alcohol -- money which could be more usefully spent.

The consumption of alcohol contributes to property damage and personal injury. Every year approximately 55,000 Americans lose their lives on the nation's highways and over half of these fatalities are caused by drinking and driving. The loss of control and impaired judgment caused by alcohol produces many more industrial accidents.

Alcohol represents a major risk to peoples' health. It is responsible for diseases such as sclerosis of the liver, kidney disease, and alcoholism. Alcohol is responsible for almost half of the diagnosed cases of stomach ulcers. Further, alcohol is a severe depressant that can lead to dissatisfaction and insecurity. The toxins found in many types of alcohol concentrate in the body and produce dangerous side effects long after the hangover goes away. Indeed, drinking is bad for your life.

Overhead #29

DRINKING HELPS YOU HAVE THE TIME OF YOUR LIFE

Drinking is an important form of social expression. It helps provide a relaxed and soothing atmosphere at social gatherings. For centuries, alcohol has played a prominent role in the celebration of important events such as weddings, personal successes, and holidays. Alcohol can help some people shed cumbersome inhibitions and fit in with the crowd. From a psychological standpoint, drinking can represent an important rite of passage, signifying that a person has "come of age."

People have a variety of personal reasons for enjoying alcohol. It helps them wind down after one of those hard days at the office. The taste of alcohol such as a good wine or a hearty brew makes for the perfect compliment with many foods. On a hot day, nothing quenches a thirst better than a cool alcoholic drink.

Alcohol stimulates the economy. Many jobs and much tax revenues are dependent on the alcohol industry. Alcohol also has numerous medicinal benefits. For example, red wine contains bacteria that promotes a more complete digestion of food. The brewers' hops used to make beer contain substances that greatly reduce hypertension. So why not, drink up for the time of your life?

Overhead
#26

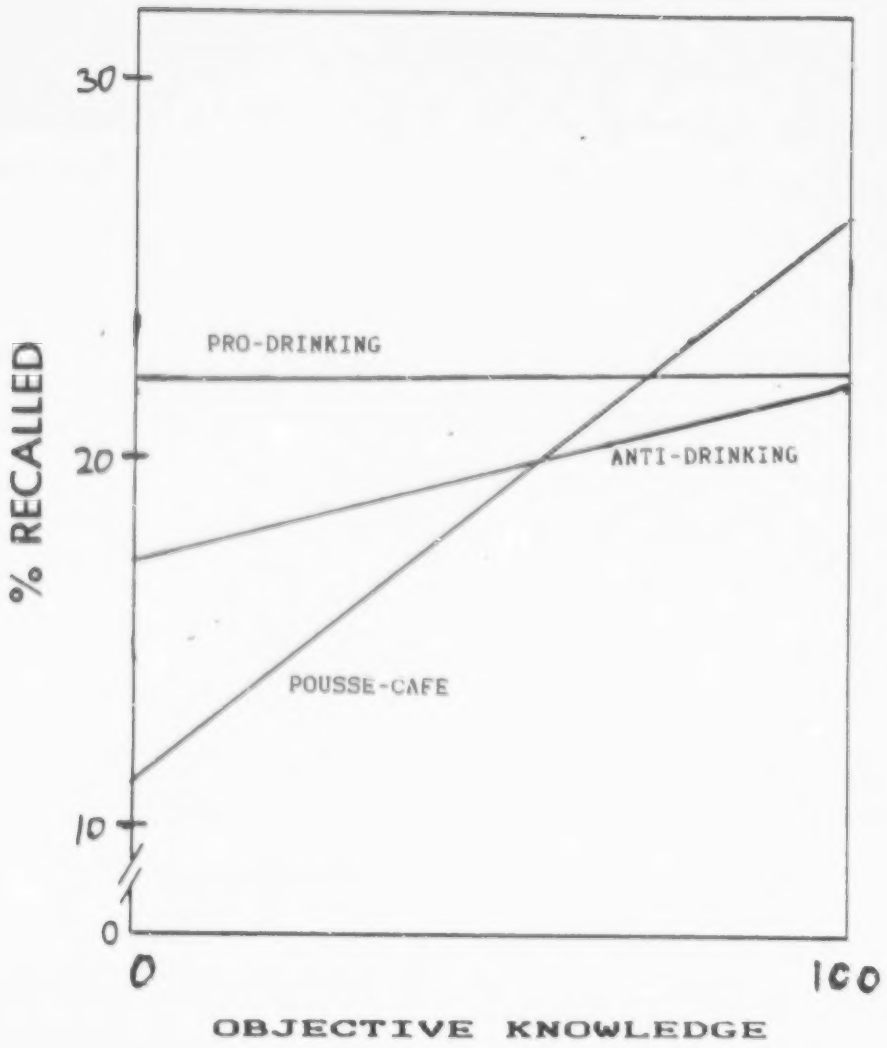
HOW TO MAKE A POUSSE-CAFE

Are you tired of hauling a 130 pound beer keg, trying to find 30 pounds of ice and a huge bucket, and then wondering should you get a ball or an e-z tap? Are all of your creative bartending talents suppressed because you don't own a toolbox equipped with shakers, blenders, jiggers, strainers and swizzlers? Perhaps you should consider making Pousse-cafes, showy little drinks that appeals to the artist in every bartender, at your next party.

The Pousse-cafe is a colorful, layered drink made with a series of liqueurs, syrups, and creams of different specific gravities. Unlike Long Island Ice Tea, Margaritas, or Black Russians which requires precise amounts of alcohol, a Pousse-cafe requires only enough alcohol so that each layer of the drink can be seen when held at eye level. First, a heavy liqueur is poured into a pony glass. Ingredients with lighter densities are then poured over the back of a teaspoon to prevent mingling. A typical Pousse-cafe may contain green creme de menthe, galliano, blackberry liqueur, and kirschwasser.

One problem in making a Pousse-cafe is that the density of the same flavor of liqueur may vary from one brand to the next. This is especially the case with coffee liqueurs such as Tia Maria and Kuhlua. However, the drinking enthusiast will enjoy experimenting with making different types of Pousse-cafes. Another great combination is a Pousse-cafe containing brown creme de cacao, marichino liqueur, rosemint, yellow chartrouse, and cognac. So, isn't it about time you started fixing Pousse-cafes?

Overhead #3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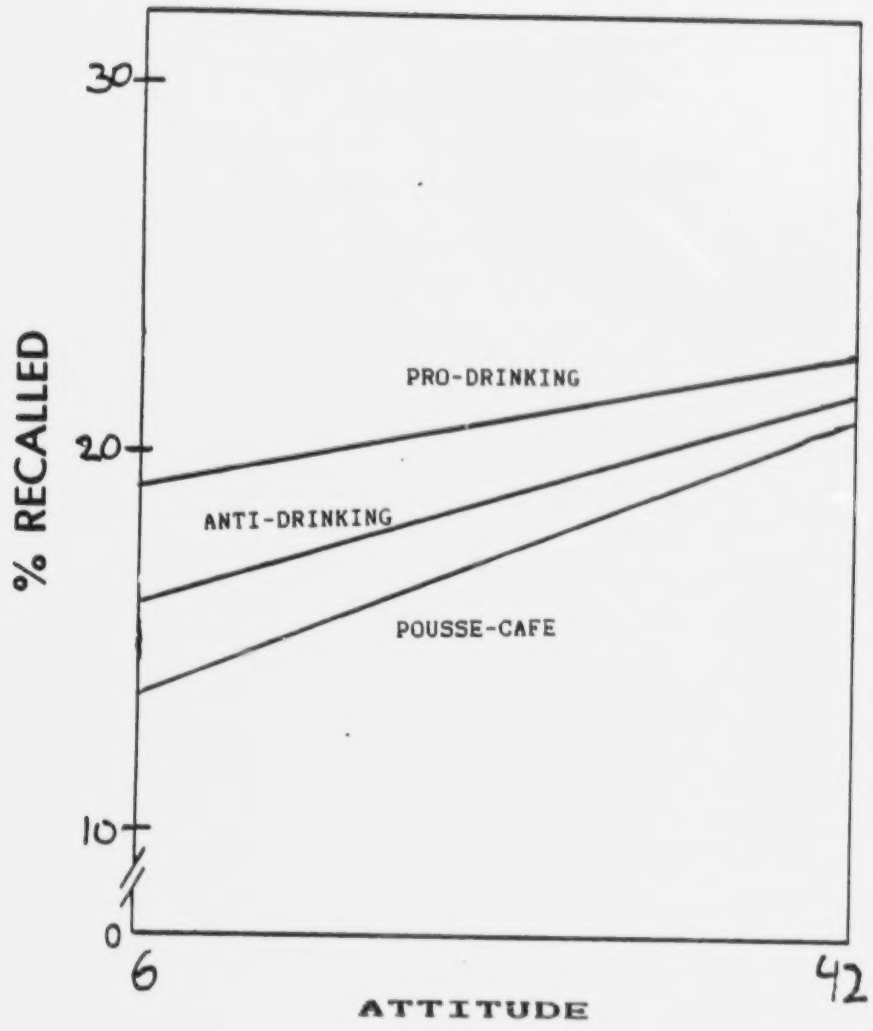
OBJECTIVE KNOWLEDGE

Overhead #4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ATTITUDE

Overhead #5